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(54) **ADAPTIVE CYCLING FOR RESPIRATORY TREATMENT APPARATUS**

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(58) **Field of Classification Search**

None

See application file for complete search history.

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(57) **ABSTRACT**

A controller or processor (s) implements detection of respiratory related conditions that may serve as control logic to synchronize pressure treatment delivery with a patient's respiratory cycle. Based on data derived from sensor signals associated with the respiratory treatment, a monitoring device, detector or respiratory treatment apparatus may evaluate flow measures from a flow sensor and distinguish flow attributable to the respiratory treatment apparatus and flow attributable to patient respiratory muscles. The determination may serve as a basis of synchronization criteria that controls pressure levels from a pressure treatment apparatus, such as by evaluating the determined patient generated flow or a relationship between total flow and apparatus flow. In some embodiments, data for the cycling conditions is determined in preliminary treatment cycles during which synchronized pressure changes are controlled

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